Branch Plants in a Peripheral Region of Japan and Their Contributability to Regional Economic Development

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Branch Plants in a Peripheral Region of Japan and Their Contributability to Regional Economic Development

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This paper deals with a question of possibilities of economic development for a peripheral region through location of branch plants, taking the example of Yamagata prefecture in northern Japan. Most studies concerning this theme tend to deny the possibilities and to insist on so-called "endogenous development" instead of "exogenous development". But the experiences in Yamagata show us that even a branch plant can become independent of its headquarters according to circumstances and that an externally controlled plant can become endogenous potential.

1. Introduction

I have analyzed the spatial pattern of control and dependency in Japanese corporations in my previous paper (Yamamoto, 1991). I have suggested there that a region characterized with dominance of branches or subsidiaries of large multilocational corporations can be more prosperous than a region characterized with dominance of single-locational corporations. The latter type of region is to be found in the periphery of Japan in a geographical sense and is underdeveloped in an economic sense, while the former type of region is very often to be identified with prefectures which lie in the suburbs of metropolises such as Tokyo, Osaka, and Nagoya. This suggests that the peripheral region can hardly develop on the basis of its own economic potentials alone.

On the other hand, almost all the studies dealing with branch plant economy reveal that it is impossible or at least very hard for a region characterized with dominance of branch plants to develop in a real sense (Massey, 1984 ; Watts, 1981). Such a region is frequently to be found in the periphery, for example, of Great Britain (Dicken, 1976 ; Marshall, 1979), of the former West Germany (Strunz, 1974 ; Schliebe, 1982 ; Weber, 1984 ; Lepping & Hösch, 1984; Schackmann-Fallis, 1985 ; Gräber et al., 1987; Nuhn & Sinz, 1988)[1] and of the EC (Glebe, 1991)[2].

A Japanese economist insists that the periphery has had a chance to grow in terms of economic indicators such as income per capita or per household, number of employments and so on, but that it is not economic development in a real sense so long as the periphery gets profit only from the branch plant economy, headquarters of which are located elsewhere far away (Ando, 1986). He thinks that the real economic development must be brought about only by endogenous factors. A number of younger economic geographers in Japan agree with this thinking based on the theory of new

spatial divisions of labour developed by Massey (1984) and on their own analyses of economic situations in some peripheral regions of Japan (Sueyoshi, 1989; Tomozawa, 1989a, 1989b; Matsuhashi, 1988).

Although I also agree with their thinking theoretically, I have some reservations about their perspective of economic development of a peripheral region, because behaviour of Japanese corporations is not so simple as the theorist assumes and because an experience of a peripheral region of Japan shows possibilities of economic development under its own potentials, even if its economy is characterized with dominance of branch plants[3]. The purpose of this paper is to show the experience of one peripheral region, Yamagata prefecture, located about 360 km northward away from Tokyo, and to reexamine possibilities of the branch plant for regional economic development.

Although my study is not based on a representative research, but only on some interviews with managerial staff at branch plants and with persons in charge at Employment Service Exchanges, newspaper reports, statistical analysis and so on, I believe that this paper could show that there are possibilities for a peripheral region to develop economically. I will raise an issue of the so-called "endogenous development" in the light of the Japanese experience in the final section of this paper.

2. A Profile of Yamagata prefecture

2.1. Peripherality of Yamagata

The most important transportation routes which connect the area of Yamagata Prefecture with the capital of Japan are the Tohoku Shinkansen (the railroad super express), the Tohoku Expressway and the air route. The former two do not, however, connect them directly. Passengers of the Shinkansen must transfer at Fukushima and go to Yamagata further by train running very slowly. Drivers must also leave the Expressway near Fukushima and then go along the National Highway Route 13 (or along the Route 286 or 48, if drivers leave the Expressway near Sendai) for more than one hour until they arrive in Yamagata. It takes about three hours to travel from Tokyo to Yamagata-shi (the seat of the prefectural government) on the Shinkansen, and about five hours by car. It takes only one hour by airplane, but the airport in Yamagata is about 24 km north of Yamagata-shi, so that it is not always more favorable to travel by airplane than by the Shinkansen between the CBD of Tokyo and that of Yamagata-shi.

Per capita income in Yamagata was 19 % lower than the national average in 1984 and reached only 55 % of per capita income in Tokyo[4]. Not a few young people migrate out every year from the prefecture and the balance between outmigrants and inmigrants reached more than 10,000 a year in the 1960's and about 4000 a year in the 1980's. Yet due to birthrate, population in Yamagata prefecture remains at about 1200 thousand today as it had before, so that the net rate of outmigration was very high until the early 1970's and is still now not low (Fig. 1). This area has supplied the staple food of the Japanese, namely rice, for the urban inhabitants since the Edo era.

Yamagata is thus one of typical peripheral regions in Japan in the geographical sense as well as in the economic sense. This prefecture is classified as an independent

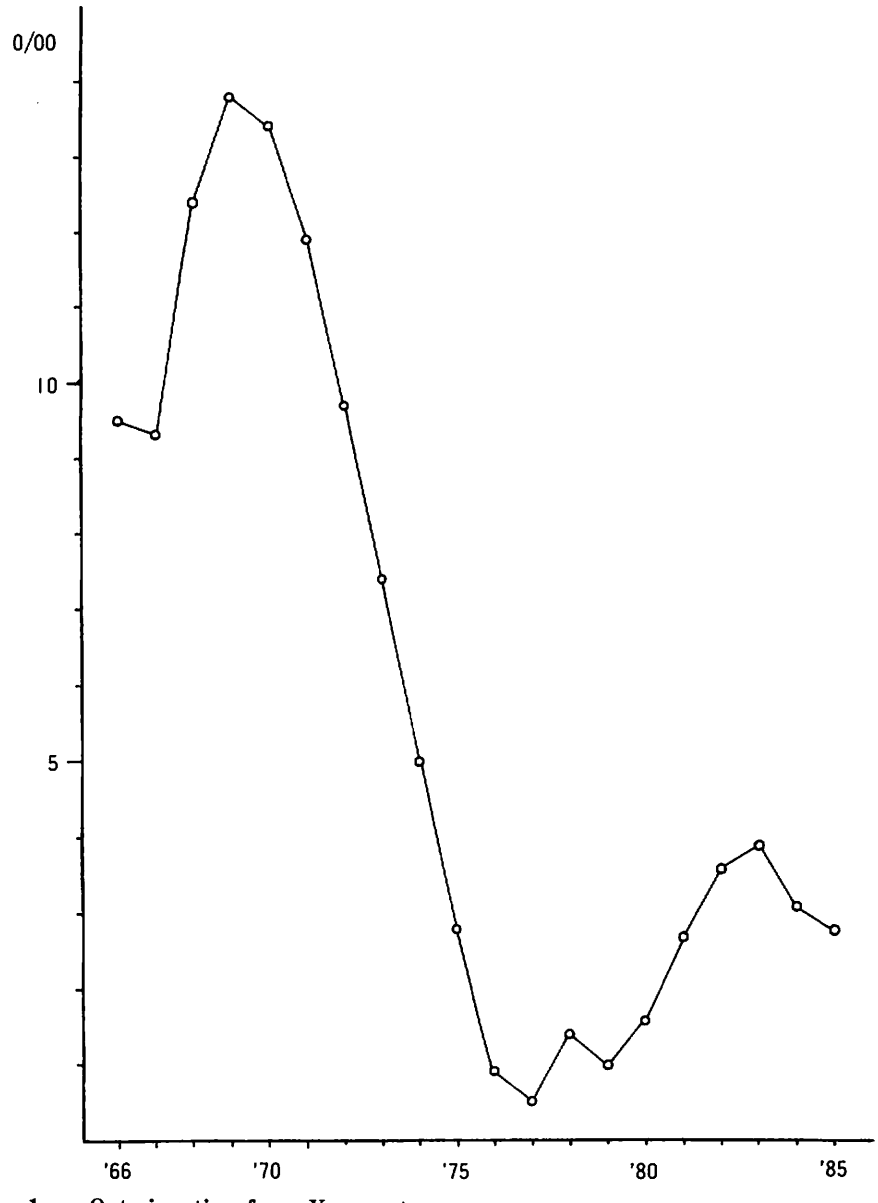

Fig. 1. Outmigration from Yamagata.
The permillage is calculated as follows: (outmigration-inmigration)/population.
Source: *Statistical Yearbook of Yamagata Prefecture*, editions of 1975 and 1985.

region according to the method adopted in a previous paper (Yamamoto, 1991, p.61). In other words, a lot of workers are employed at single-locational corporations and the intra-corporate connection of Yamagata with other regions is relatively weak.

But more than 31 % of employees in Yamagata worked at branch plants or offices even in 1963. 19 % of the employees were controlled by headquarters located in some other prefecture than Yamagata. The rest of the employees at branches, namely 12 %, were controlled by the headquarters located within Yamagata. Most of the external headquarters were located in Tokyo (Table 1). This is still the case today.

The extent of external control seems to have become rather weaker in 1981 than in 1963. Within this period more people have come to be employed at headquarters or

Table 1. Distribution of Three Types of Business Establishments in Yamagata, Estimated with Number of Employees.

Type of Establishment	1963	1969	1975	1981
Single-location corporation	49.5%	44.2%	43.0%	42.9%
Headquarters of multilocational corporation	19.1	23.9	25.0	24.2
Branch of multilocational corporation	31.3	31.9	32.0	32.9
Headquarters located in Yamagata	12.3	14.0	14.0	16.0
Headquarters located outside Yamagata	19.1	17.9	18.0	16.9
in Tokyo	13.1	10.5	10.7	9.5
in Osaka	2.4	2.0	1.7	1.0
in Miyagi	2.4	2.8	2.0	2.0
in Kanagawa	—	—	—	1.2

Sources: Statistics Bureau of Prime Minister's Office, *Establishment Census of Japan*, each year.

head plants of multilocational corporations. This means that employment at headquarters has grown faster in Yamagata than employment at branches.

It is, however, more important to notice the location movement of the subsidiaries which are de jure independent companies but capital of which is 100 per cent in hands of some large corporation located in some metropolitan area. Most of them belong to secondary industries and it is to be estimated that more than ten per cent of the workers in manufacturing are employed at some subsidiaries, mostly with parent corporations located in Tokyo[5]. Thus the extent of external control has not become weaker as a matter of fact.

2.2. Subregions in Yamagata

Yamagata is a peripheral region in relation to Tokyo. We can find a similar spatial relationship within Yamagata, what is important to consider the issue discussed in this paper.

Yamagata is to be divided into four subregions on the basis of historical as well as physical geographic condtions (Nihon Chishi Kenkyujo, 1971). Three of these subregions are to be divided further on the basis of the central place system, so that Yamagata prefectural area is sometimes to be divided into eight subregions (Fig.2). These subregions have experienced different economic development from each other.

The inhabitants in each subregion have very different images or very different degrees of satisfaction with their own subregional living conditions respectively from each other. Many people in Southeast Murayama are satisfied with their living conditions aside from housing, while many in Mogami and Oitama are not. The degree of satisfaction of the people in Shonai is in the middle between those extremes (Section of Statistical Research, Department of Planning and Coordination, Yamagata Prefecture, 1983).

3. Inflow of External Capital into Yamagata

The industrial structure of Yamagata has changed dramatically since the 1960's. In

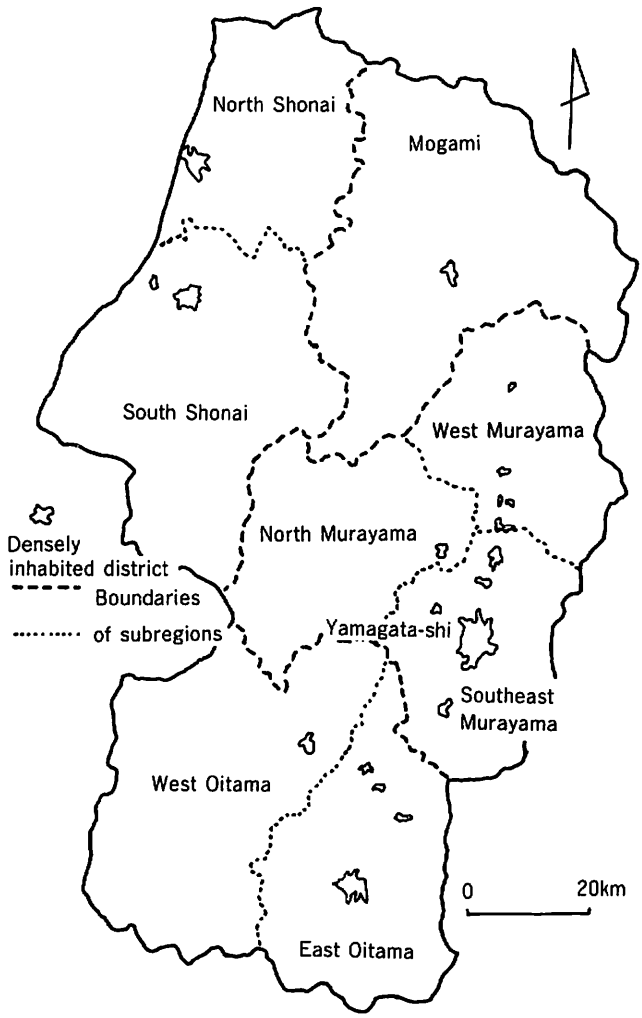

Fig. 2. Subregions and urban areas in Yamagata

those days Yamagata was almost a pure agricultural region. Since then manufacturing has come to the fore more and more (Table 2).

It is the electronic industry that has promoted the recent industrialization in Yamagata, while the textile and the food industries were dominant in the 1960's. The industrial structure of Yamagata is now very biased toward the electronic industry (Table 3).

This industrialization reflects the so-called "microelectronic revolution". The people and mass media call this and adjoining regions in the Tohoku district "Silicon Road", and the Kyushu district "Silicon Island", modelled on the Silicon Valley in California, USA, as if the "Silicon Road" and the "Silicon Island" were the core of the microelectronic industry in Japan (Nikkei Sangyo Shinbun, 1984).

It is of course exaggeration to regard these two regions as the core of microelectronic industry, because only integrated circuits (IC) and other microelectronic equipment are produced in a large scale in the two regions (Yamaguchi, 1982a, 1982b ; Matsubara, 1987 ; Inoue & Ito, 1989) and the important R&D institutes are located in

Table 2. Comparison of the Industrial Structure between Yamagata and National Average, Evaluated with Number of Employees. (%)

IndustryYamagata	National			Average		
	1965	1975	1985	1965	1975	1985
Agriculture, Forestry and Fisheries	45.0	29.9	20.2	23.8	13.2	8.7
Mining	0.7	0.3	0.2	0.7	0.2	0.2
Construction	6.7	8.6	9.0	7.1	8.9	9.0
Manufacturing	13.6	18.7	24.3	24.5	24.9	23.9
Utilities	0.4	0.5	0.4	0.6	0.6	0.6
Transport and Communication	4.1	4.3	4.0	6.1	6.3	6.0
Wholesale and Retail	13.7	17.4	18.5	17.8	21.4	22.9
Finance, Insurance and Real Estate	1.5	2.0	2.5	2.4	3.3	3.8
Services	11.5	14.7	17.4	13.0	16.4	20.5
Government	3.0	3.5	3.5	3.1	3.7	3.5
Unclassifiable	0.1	0.2	0.1	0.0	0.3	0.3
Total	100	100	100	100	100	100

Sources: Statistics Bureau of Prime Minister's Office, *1965 Population Census of Japan. Vol. 3, whole Japan Part 1, 1975 Population Census of Japan. Vol. 2, Whole Japan*, and Statistics Bureau, Management and Coordination Agency, *1985 Population Census of Japan. Vol. 3, Results of the Second Basic Complete Tabulation, Part 1.*

Table 3. Important Sectors of Manufacturing in Yamagata and Their Counterparts in the National Average (%)

Industry	Yamagata			National Average		
	1965	1975	1985	1965	1975	1985
Food, Drink, Feed & Tabacco	18.4	14.0	10.8	11.1	10.4	10.6
Textiles, Apparel & Relate Product	21.6	20.6	16.8	16.5	13.5	10.6
Lumber, Wood Products, Furniture	14.3	11.3	5.6	7.8	6.9	4.5
Machinery, exclusive electric	9.4	8.3	7.4	9.1	9.8	10.3
Electric machinery, equipment	8.2	19.0	32.6	8.6	10.7	16.8
Others	28.1	26.8	26.8	46.9	48.7	47.2
Total	100	100	100	100	100	100

Sources: Census of Manufactures, each year.

the Tokyo or Osaka metropolitan areas today as it always has been (Watanabe, 1982; Institute of Capital Investment of Japan Development Bank, 1986; Kimura, 1989). Nevertheless it is notable that the function of mass production of ICs and other microelectronic equipment has been located in the periphery, because the economic stagnation of the periphery could be overcome and the standard of living would be improved through the activities of that manufacturing.

It is not endogenous capital potential, but inflow of the external capital from the metropolitan area that enabled the microelectronic industrialization in Yamagata. More than 60 % of the new factories established almost every year were built by external corporations (Table 4). Although only about 12 % of manufacturing establishments in Yamagata were 1985 in hands of the external capital, 34 % of the employees were controlled by this and the share of sales amounted to 42 %, so that sales per employee was higher in factories controlled externally than those of endogenous corporations (Table 5).

Table 4. New Location of External Controlled Factories in Yamagata, Evaluated with Operation Start.

Year	Number of Factories Controlled by External Capital (A)	Number of Factories Controlled by Internal Capital (B)	Total	(A)/(B)
1961—65	27	39	66	40.9%
1966	12	12	24	50.0
1967	11	9	20	55.0
1968	21	21	42	50.0
1969	26	40	66	39.4
1970	32	29	61	52.5
1971	27	22	49	55.1
1972	34	22	56	60.7
1973	68	30	98	69.4
1974	45	11	56	80.4
1975	9	8	17	52.9
1976	17	5	22	77.3
1977	14	2	16	87.5
1978	8	2	10	80.0
1979	12	6	18	66.7
1980	19	10	29	65.5
1981	18	12	30	60.0
1982	20	12	32	62.5
1983	13	9	22	59.1
1984	27	12	39	69.2
1985	24	12	36	66.7
1986	16	15	31	51.6
Total	500	340	840	59.5

Sources: Department of Commerce, Industry, Labor and Their Development. Yamagata Prefecture (1987), *Kogyo Ricchi no Genjo to Showa 62 Nendo Shisaku Gaiyo* (*The Actual Situation of Industrial location and Outline of Policy in the Fiscal Year 1987*), Yamagata, (in Japanese).

Table 5. Importance of the Externally Controlled Plants in Yamagata, 1985

	Yamagata Total (A)	External Capital (B)	(B)/(A) %
Number of Factories	4,843	566	11.7
Number of Employees	143,217	48,148	33.6
Sales (Billion Yen)	1,864	778	41.7
Sales per Employee (Thousand Yen)	13,020	16,160	

Sources: see Table 4.

The extent of the control by external capital is much higher for the electronic industry than for the consumer goods manufacturing such as food and textile or the other traditional sections. The share of the external capital amounted to 20 % in the number of establishments, 52 % in the number of employees and 66 % in the sales.

The four subregions in Yamagata show different extent of the control by external

capital. The numbers of establishments and employees and sales by external capital are much higher in Murayama and Oitama than the other two subregions. But Murayama shows the lowest share of the external capital among subregions in the three indices, while Mogami shows the highest share. Murayama and Mogami contrast very sharply with sales per employee (Table 6).

These facts mean that not only factories owned by external capital but also endogenous factories have been located in larger numbers in Murayama than in the other subregions. Furthermore, the quality of employment may well be better in Murayama than in the others. Table 7 shows the location of different electronic industries in each subregion. Murayama has more factories of communication and computer equipment than of electronic components, while the other subregions show a contrasting composition.

Table 6. Importance of the Externally Controlled Plants of the Subregions in Yamagata

	Murayama	Mogami	Oitama	Shonai
Number of Factories	217	64	167	118
	(10.0%)	(21.3%)	(13.2%)	(10.6%)
Number of Employees	17,674	4,763	13,826	11,885
	(28.7%)	(47.0%)	(36.0%)	(35.9%)
Sales (Million Yen)	322,912	43,830	230,691	180,657
	(38.4%)	(57.0%)	(42.7%)	(44.4%)
Sales per Employee (Thousand Yen)	18,270	9,202	16,685	15,200

Note: The percentage in parentheses is the proportion of the external capital to the total in each sunbregion.
Sources: see Table 4.

Table 7. Number of Factories in the High-Tech Industries in Subregions of Yamagata.

	Murayama	Mogami	Oitama	Shonai	Total
Medicin	4	—	1	—	5
Communication equipment	27	2	7	10	46
Computer & its peripheries	5	1	2	2	10
Electronic applied equipment	6	2	3	—	11
Electric instruments	3			1	4
Parts of electronic & Communication equipment	8	8	16	13	45
Medical instrument	—	—	—	1	1
Optics	5	1	6	2	14
Total	58	14	35	29	136

Sources: see Table 4.

4. Location Policies of the Central Government and the Yamagata Prefectural Government

Policies of the central and the local governments have induced the location of so many factories in Yamagata. The Japanese government has designed regional development plans several times so far and has enacted a number of laws in order to carry the plans into execution. The principal aim of the plans has always been to reduce the

regional disparity. Although there is no consensus about the results of the execution of the plans among regional economists, including the academics and government economists, manufacturing industries have diffused from the metropolises into the rural areas[6].

The most important laws for the location of manufacturing in Yamagata are "the Act of Promotion of Industrial Development in the Backward Regions" in 1961, "the Act of Promoting Industrial Location in the Rural Areas" in 1971 and "the Act of Promoting Relocation of Industries" in 1972[7].

A corporation can enjoy special depreciation of the machines, etc. and exemption or reduction of some taxes according to the first law, if it has invested in an area designated as a backward region. Eighteen municipality areas in Yamagata have been designated as such and they are concentrated in East Oitama, Southeast Murayama and North Murayama (Fig. 3).

The second law aims to give farmers and their families employment opportunities by way of locating manufacturing and to improve the agricultural structure by means of reduction of farmers and concentration of farmlands in hands of a small number of farmers. Not only can a corporation which invests in the designated areas depreciate

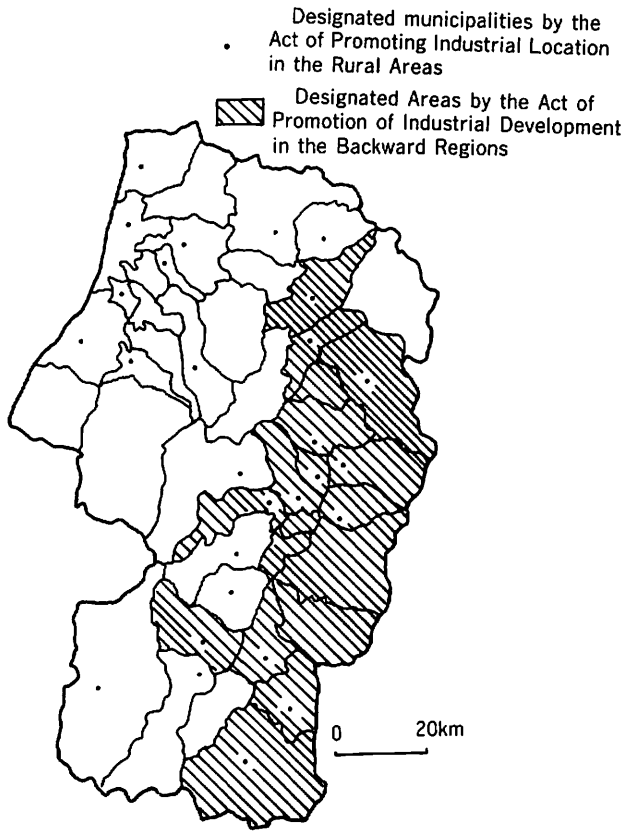

Fig. 3. Designated Areas for Indutrail Policy in Yamagata.
All municipalities in Yamagata are disignated as a special inducement area on the basis of the Act of Promoting Relocation of industries in 1972.
Source: Tohoku Denryoku (1987), *Tohoku no Kojo Tekichi. Yamagata-ken (Land for Location of Factories in Yamagata)*, Sendai, (in Japanese), p. 3.

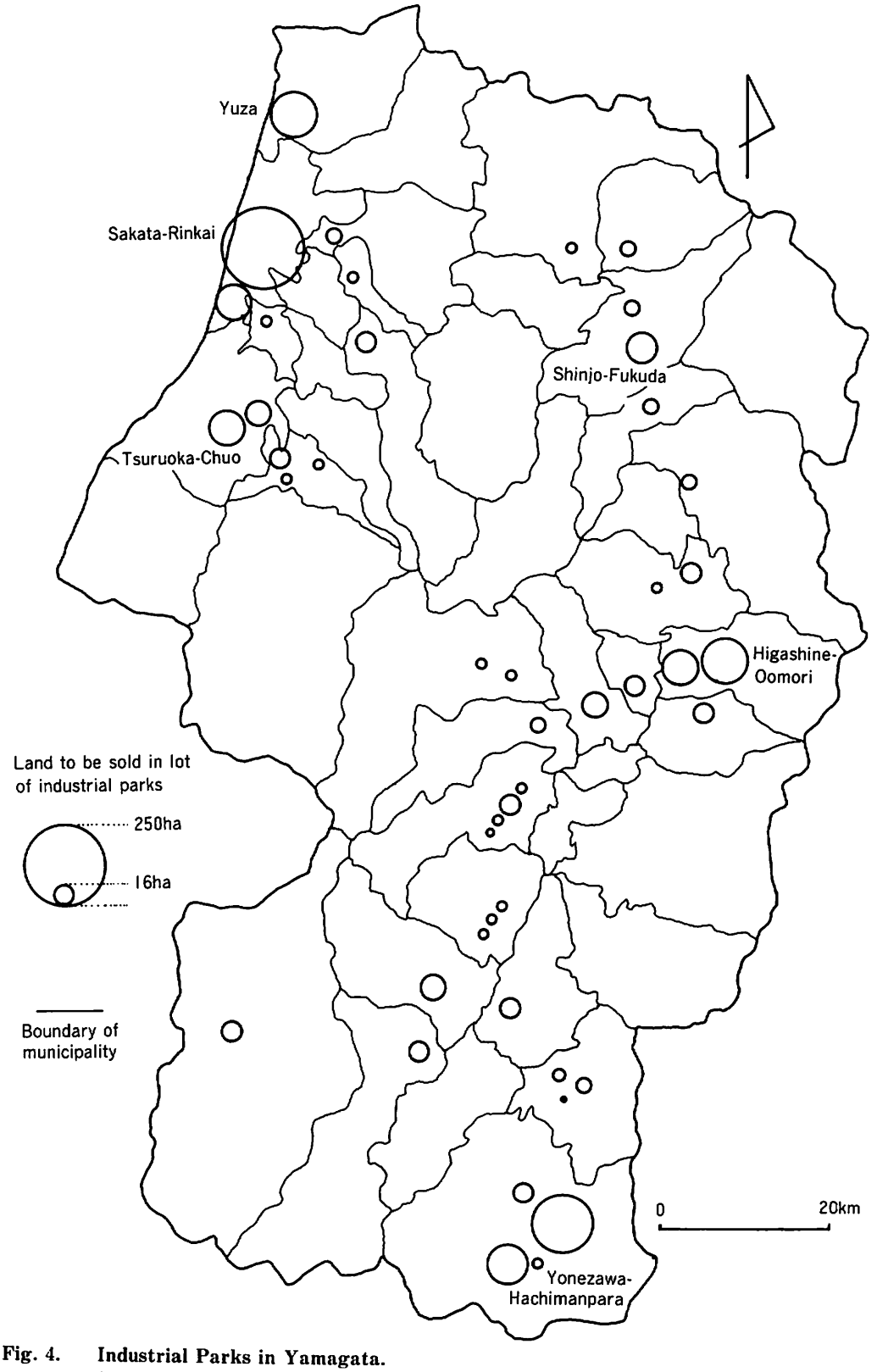

Fig. 4. Industrial Parks in Yamagata.

Source: Section of Industrial Location. Department of Commerce, Industry, Labor and Their Development. Yamagata Prefecture (1987), *Yamagata-ken Noko Danchi no Genkyo (The Actual Situation of Agro-industrial Parks in Yamagata on 31th December 1986)*, Yamagata, (in Japanese).

the investment quickly and get exemption or reduction of some taxes; but a municipality may also get finances at a low interest to make an indutrial park. 28 municipalities have been designated as rural but should-be-industrialized areas.

The third law has the purpose of inducing the relocation of factories from the metropolitan areas into the rural areas. A corporation which relocates its factories into a designated rural area can get exemption or reduction of some taxes. But what is more important is that a local government can issue bonds in order to develop a large industrial park. A whole area of Yamagata Prefecture has been designated as a special inducement area[8].

The prefectural government and the municipal authorities in Yamagata have made use of these laws and developed a number of industrial parks. Yamagata is one of prefectures, which have experienced many new locations of factories. While the number of factories which were actually running in Yamagata accounted for only 1. 0 % of the total in Japan in 1975, the number of new locations of factories in Yamagata accounted for about 3.3 % of the total in Japan between 1971 and 1985[9]. This rapid increase of factories was enabled by the effort of the local governments which developed industrial parks.

There are the so-called "core industrial parks" in Yamagata (Fig.4). The core industrial parks "Yonezawa-Hachimanpara" and "Shinjo-Fukuda" have been developed by the Japan Regional Development Corporation[10] in cooperation with the local governments concerned. The development of the former park was the first project of the public corporation for regional development. Construction was authorized in 1973 and began in 1975. The development of the latter core industrial park was permitted in 1978 and began in 1981. By 1978 there were only nine industrial parks across the country, which should be developed by the Japan Regional Development Corporation, and two of the nine lay in Yamagata. There are now in the whole country 23 core industrial parks developed by the public corporation. Only Yamagata and the adjoining prefecture Fukusima have two core industrial parks respectively, while there are still a number of prefectures with no core industrial parks.

In Yamagata there are in addition four large industrial parks which have been developed by the prefectural government alone. The first of these was developed in 1971 in South Shonai (Tsuruoka Chuo), the second in 1972 in North Murayama (Higashine-Omori), and the third and the fourth in 1973 in North Shonai (Sakata-Rinkai and Yuza). Thus, the prefectural government had already started to develop industrial parks by itself, before the central government or the public corporation linked strongly with MITI undertook the development of the core industrial parks. Although the "Act of Promoting Relocation of Industries" was enacted in 1972, the central government has only carried out the program since 1977, because the first oil crisis happened and changed the economic situation in Japan drastically.

There are furthermore 39 smaller industrial parks in Yamagata. These have been developed by municipalities or their related public corporations since 1971. The prefectural government call these industrial parks including the above mentioned large parks "agro-industrial parks". This name means that the development of these should contribute to the creation of employment opportunity in manufacturing as well as to improvement of the agricultural structure[11].

The prefectural government has located a branch offices in Tokyo and in Osaka in order to sell the land of the agro-industrial parks in lot. Otherwise the corporations

in the metropolitan areas should have little information about the industrial parks and have hardly chance to decide themselves to invest in Yamagata. Although only five persons worked at the Tokyo office and two at the Osaka office, they visited in 1986, for example, headquarters of the corporations in the two metropolitan areas 2100 times altogether in order to make "face to face" contact with the persons in charge and to sell the land of the industrial parks[12].

Yamagata is one of the prefectures in which a lot of factories have been located since the 1970's. This is partly a result of the location policy of the central and the local governments[13]. But the business of selling the land in lot has been neither always nor everywhere successful. The number of factories which were really located in the agro-industrial parks was smaller in the early 1970's than in the early 1980's, although business conditions were better in the former period than in the latter (Table 8). A part of the land of the core industrial park in Yuza, North Shonai, has already sold in the

Table 8. Location of Factories in the Agro-Industrial Parks in the Subregions of Yamagata

	Murayama			Mogami	Oitama		Shonai		Total
Year	Southeast	West	North		East	West	South	North	
Before 1973	5	4	5	0	2	3	5	0	24
1973	1	1	1	1	2	3	2	0	11
1974	4	1	2	0	2	1	7	0	17
1975	0	1	1	1	1	1	2	2	9
1976	2	2	2	0	3	1	1	1	12
1977	0	0	1	0	2	0	3	5	11
1978	1	4	1	0	0	0	3	2	11
1979	1	4	3	1	2	1	4	1	17
1980	2	5	4	1	6	1	4	3	26
1981	0	1	5	2	6	5	0	2	21
1982	2	5	6	1	4	1	5	4	28
1983	1	4	3	0	1	2	4	0	15
1984	2	4	6	0	11	1	3	2	29
1985	0	2	2	3	9	2	3	1	22
1986	0	2	2	2	5	3	2	1	17
Total	21	40	44	12	56	25	48	24	270

Sources: see Fig. 4.

Table 9. Land Sold in Lot in the Agro-Industrial Parks of Yamagata by 1986

Subregion	Area to be sold (A)	Are already sold (B)	(B)/(A) %
Southeast Murayama	148,166 m²	148,116 m²	100
West Murayama	824,683	515,148	62.5
North Murayama	1,682,201	1,390,755	82.7
Mogami	642,478	238,855	37.2
East Oitama	2,714,786	1,847,697	68.1
West Oitama	630,528	248,337	39.4
South Shonai	1,137,646	908,611	79.4
North Shonai	3,979,048	2,697,463	67.8
Total	11,759,486	7,994,982	68.0

Sources: see Fig. 4.

1970's, but no factory has yet been established as a matter of fact (Asahi Shinbun, 1988). On the other hand, while more than 80 % of the developed land of the agro-industrial parks in North Murayama had been already sold in 1986, the percentages have not amounted to even 40 % in Mogami and West Oitama (Table 9).

It should be noticed that only a part of location of factories have been realized at the agro-industrial parks. More than the half have been located at sites other than agro-industrial parks. It was the original aim of the agro-industrial parks that farmers and their families might be able to find employment opportunities in manufacturing. The location policy of the local governments has not always been succesful from the viewpoint of this aim. The real number of employees working at factories located at the agro-industrial parks in 1986 did not amount even to the 50 % of the planned number and the number of employees recruited from the agricultural section was much more unsatisfactory. It goes without saying that the ratio of achievement was much lower in the three subregions, namely Mogami, West Oitama and North Shonai (Table 10).

Table 10. Ratio of Job Creation to the Plan through Construction of the Agro-Industrial Parks by 1986

Subregion	Total employment			from agricultural sector		
	Total	Man	Woman	Subtotal	Man	Woman
Southeast Murayama	103 %	103.2%	102.8%	58.2%	55.0%	62.5%
West Murayama	58.9	49.7	72.5	43.8	36.8	54.7
North Murayama	48.4	49.8	47.0	30.4	25.8	35.8
Mogami	15.4	10.4	31.3	12.4	8.3	25.6
East Oitama	59.1	61.7	54.3	19.2	17.4	22.9
West Oitama	26.4	27.2	24.9	23.3	22.1	26.4
South Shonai	59.3	55.7	65.5	43.9	33.9	60.0
North Shonai	32.8	38.1	26.4	21.1	24.1	17.6
Total	43.8	42.0	46.6	27.5	23.3	34.5

Sources: see Fig. 4.

5. Cases of the externally controlled factories

Although the statistics may tell us that the local governments must be in difficulty, the factories especially in the electronic industry which have been really located in Yamagata through policies of the local governments and which are in hands of the external capital might well give the people some good expectations. I examine possibilities of the externally controlled factories for regional economic development by analyzing several cases in the following section. None the cases I have investigated are mere branches of large corporations, but subsidiaries, headquarters of whose parent corporations are located in Tokyo. Most sources of the information stem from my interview with managerial staff of each company[14].

5.1. The case of company A

Company A was established in 1983 by the top maker of host computers in Japan. The capital of the company is 100 per cent in the hands of corporation A'. It is located in North Murayama and produces small magnetic disks in a large scale.

It is said that a number of prefectures tried to host subsidiaries of corporation A', because this corporation is so famous that it generates hope in local governments for regional development. Although there is no special location factor in Yamagata for company A, corporation A' decided to choose Yamagata as a site, because the Yamagata prefectural government and the economic circles in this prefecture solicited it most earnestly.

Within Yamagata, a good access to the airport is the most important location factor for selecting a site. Because the technology for electronics develops so rapidly and because the competition is so hard among the large corporations concerned, a corporation must transfer the developed technology from its R&D insitute or its pilot plant to the factory with mass-production function as promptly as possible. Otherwise the corporation would lose out to competition. The pilot plant and the factory with mass-production function need to communicate with each other very frequently and closely in order to transfer the technology. It is not, however, enough only to communicate through telephone or in facsimile for the quick and reliable transfer. It is better for engineers at the pilot plant and workers at the factory to keep in "face to face" contact with each other.

Company A in Yamagata cooperates with the pilot plant in Kawasaki, Kanagawa, which is not a subsidiary but belongs directly to corporation A'. It takes only two or three hours to travel from the pilot plant to the factory in Yamagata because of the good access to the airport at either end side. In practice, it is said, an engineer comes to the factory almost everyday.

Company A has a very narrow connection with endogenous corporations in Yamagata. Only 20 % of the parts for the final product, namely small magnetic disks, are made by the company itself, and the rest are supplied by other companies. But 80 % of the parts supplied by others come from outside Yamagata. It is true that there are three suppliers located in Yamagata. Two of them have, however, their headquarters in the Tokyo metropolitan area.

Why did corporation A' found the factory in Yamagata not as its own branch establishment but as its subsidiary, which is independent by law? One reason is to be found in the great difference in wages between the metropolitan areas and Yamagata. If the factory in Yamagata were a de jure branch establishment of the corporation A', it would have to pay the employees of the branch wages as high as those of the employees of a plant located in the metropolitan areas. Then it would have confused the situation of the labor market in Yamagata. Because company A is independent by law, the wage system can be different from that of corporation A'.

It is said, however, that it is important to make decisions quickly as well as appropriately according to changing circumstances. A small or medium-sized company can do so in general better than a large corporation. If the factory were a mere branch, it could not adapt itself well to the changing circumstances.

Company A is still so young that it produces only small magnetic disks. But according to the statute of this company, it should engage not only in production but also in development and sale of the product. It has already employed more than 40 graduates of some technical faculties and colleges in order to engage in the higher-level activities in the near future.

The last two points mentioned above, namely the independent decision-making and the plan for development activities in the near future, creates good prospects for the regional economy of the peripheral area.

5.2. The case of company B

Company B was established in 1979 by corporation B' as a 100 % subsidiary. Company B is located at the same industrial park in North Murayama as company A. Corporation B' is well known as a manufacturer of electronic calculators, electronic watches and electronic musical instruments. It has two more subsidiaries in Aichi and in Yamanashi, and assigns a mass-production function to the three subsidiaries, while it has its own branch plants in Tokyo and Yamanashi, which have the function of conducting experiments on new products or new production technology.

It is said that the three subsidiaries compete with each other under the supervision of the corporation B'. The strategy of the competition among subsidiaries is adopted by the company B as well. This has its own subsidiary and many de facto subordinate companies with function of parts supply in Yamagata as well as in adjoining prefectures.

It is said that the presence of many parts suppliers in Yamagata and neighboring prefectures is the most important reason, why corporation B' made a decision to establish its subsidiary in Yamagata, as it faced the problem of increasing production in accordance with the rapid increase of demand for the electronic goods. It had alternative choices for increasing production rapidly; either enlargement of the existing factories, or establishment of a subsidiary at another location in Japan, or increase of OEM supply from other companies, or establishment of a subsidiary in some foreign country.

Corporation B' abandoned the first choice, because it is very difficult to recruit young, low-wage, manual laborers at the sites of the existing factories, namely in the metropolitan areas. Neither the third nor fourth choice was appropriate, because the technology advances so rapidly that the life cycle of a product becomes shorter and shorter. In order to adapt itself to the progressing technology, it must communicate closely and frequently with the mass-production factory located elsewhere than in foreign countries. Of course it must hold the technological superiority among competing corporations. Because of these reasons, corporation B' made a decision to establish its own subsidiary in Yamagata.

It is said, however, that today engineers seldom come from the pilot plant or the R& D institute of corporation B' to company B in order to transfer newly developed technology. The engineers of the company B seldom visit the pilot plant of the corporation B' as well. They are trained at the parent corporation for a while, only immediately after they are hired by company B. Then they work independently of engineers at the parent corporation.

It is remarkable that the company produces not only the goods with the trademark of corporation B' but also its own original goods, such as factory automation machines, plastic & precision metal molds and programs for office automation machines. It is said that the sales of these original goods occupied only about 20 % of the total sales of the company in 1987. But it will increase this percentage and is going to recruit more than ten graduates from technical faculties and colleges every year under this strategy. This means that the company is not a mere subsidiary, but has really become an independent company in some sense at least.

5.3. The case of the company C

Company C was established in 1966 in Southeast Murayama by corporation C'. The capital of the former is 100 % in hands of the latter. The parent corporation is well known as a maker of stereos. At first, the subsidiary put out speakers for television sets, radios and stereos. It needed no engineer for this assembly production, but only a large number of female, low-wage, manual laborers. The production was really labor intensive in nature and the location factor was the availability of cheap labor in Yamagata.

It is true that this character has not changed drastically yet. But the main product has changed to stereos for automobiles since the mid-1970's, and company B has established its branch plant in East Oitama and its own subsidiaries in Yamagata as well as in a neighboring prefecture. Furthermore it has so-called "cooperative factories" in Southeast Murayama, Shonai, and East Oitama as well as in neighboring prefectures and contracts for a lot of in-home piecework. The "cooperative factory" is a de facto subsidiary.

It was very important for company C and it may well be important for regional economic development that it developed a factory automation machine independently and marketed it in 1984. The motive for the development was to economize the labor cost in order to compete with corporations in the Asian NIEs. The company needs now only a fifth of manual workers at a belt conveyor in comparison with the conditions in the 1960's, thanks to factory automation machines it has developed by itself.

It sells the factory automation machines today, independent of its parent corporation, although the proportion of sales of this product to the total is very little (2.1 % in 1986). In order to increase sales of the factory automation machines, it established its own sales office in Saitama, a prefecture in the Tokyo metropolitan area. Considering the location of the parent corporation, the behavior of comapany C is very remarkable.

In 1973 company C began to employ engineers who had worked at other corporations in the metropolitan areas and had hoped to return to their home prefecture. Employment of the so-called "U-turn talent" from the metropolitan areas is the case with company B as well. Company C has employed new graduates of technical faculties and colleges every year since 1979.

According to the Nihon Keizai Shinbun (1991) engineers of company C have recently developed a very low-priced facsimile (about 50,000 Yen), that will come into widespread use. This is an illustration of how an externally controlled plant can become

to be innovative by itself.

5.4. The case of company D

Company D was established in 1964 at a town in East Oitama by a Corporation D', which is most successful in the personal computer market as well as in the production of ICs among Japanese electronic corporations and has a long-established position in the field of telephone apparatus.

At first, company D produced the electronic devices for radios. It is said that there were two important location factors for the selection of the plant site at the small town in Yamagata. One was a personal contact, and the other was the earnest solicitation by the then mayor of that town.

One of the main plants of corporation D' lies in Kawasaki, Kanagawa prefecture, and a lot of workers from Yamagata were employed at this plant. They won a reputation as very industrious workers in the corporation. In those days, it sought an appropriate location for a new factory in peripheral regions of Japan and the reputation of its workers from Yamagata made its corporation seek a site in this prefecture.

The then president of the corporation wrote in his autobiography (Kobayashi, 1987) that it should not concentrate its production function at one site, but adopted a strategy to distribute its factories all over Japan. This idea stemmed from the so-called "division system", which corporation D' adopted in the early 1960s. Each division of the corporation should behave as if it were an independent corporation, and had its own budget system respectively. The corporation with a division system is characterized not with a vertical organization but with a horizontal one, so that factories should be distributed, the then president wrote, horizontally all over Japan.

On the basis of this idea, the corporation believed it would be easy to recruit workers in Yamagata through the personal contact between the employees at Kawasaki and their relatives and acquaintances in their home prefecture, if it established a factory in this region. The then mayor of the town happened to be interested in hosting a manufacturing establishment. His movement was succesful and he later founded two companies by himself, which supply parts to the company D.

It may be necessary to reexamine if indeed only these factors were considered for the selection of plant site at that time. It may well be that essentially the corporation or its subsidiary would be able to recruit a lot of cheap manual workers in Yamagata, although it is said that the personal contact and the earnest invitation were important.

In 1970's, the company established a branch plant in Southeast Murayama, and another in South Shonai in 1976, when its headquarters was relocated from East Oitama to the first branch in Southeast Murayama. This company now puts out ICs for home electronic goods in a large scale and consistently with a division-of-labor system among three plants. Manufacturing processes of the ICs are divided into two main stages. The first process is capital intensive and characterized by higher technology, while the second process is labor intensive. Before the plant was established in South Shonai, the parent corporation's plant at Kawasaki provided the half-finished product to company D. Thus the latter was literally dependent on corporation D'. It is today independent at least in the sphere of production.

Company D is not only a subsidiary of corporation D' but also a parent corporation

of another company, which was founded in 1983 in the neighboring prefecture of Akita. This granddaughter company of corporation D' is assigned the function of mass production in the second processing stage for ICs and half-finished products for this company come from the plant of company D in South Shonai. Company D also has so-called "cooperative factories" in Yamagata. They are all relatively large companies in this prefecture. Through such a process company D has become the largest manufacturer among companies located in the Tohoku District.

The company has stopped recruiting manual laborers in 1986 and began to employ new graduates of technical faculties and colleges some years ago. It is said that the company would not recruit mere manual workers anymore, even if a boom for ICs should come again. The strategy is now to economize labor cost by means of improvement of manufacturing technique. It is necessary for company D to employ engineers in order to carry out its strategy by itself.

5.5. The case of company E

The factory of the company E was built in 1969 in East Oitama by a corporation which is famous for the production of audio equipment etc. and is headquartered in Tokyo. As this corporation fell into a crisis, corporation E' bought this factory in 1973 and founded a subsidiary to produce semiconductors on a large scale. Corporation E' is the largest concern in Japanese electronic manufacturers.

Company E has no function to produce ICs in the first stage of production. It brings half-finished products from one of the plants run by corporation E', which is located in Yamanashi. This plant and company E are supervised by the pilot plant of corporation E', which is located at suburbs of Tokyo. It is said that engineers of company E often visit the pilot plant or engineers from the pilot plant come to Yamagata in order to improve the manufacturing technique for IC production. The company E has also recruited new graduates of technical faculties or colleges since 1981.

The composition of workers has changed dramatically since the company engages in the production of IC at the second stage of production. Formerly, most of the workers had been women. But as the boom developed for ICs, the company adopted the three shift system and has come to employ more male workers than women. In 1987, the proportion of male workers to the total employees was about 70 %. Company E also has its own subsidiaries nearby and a "cooperative factory" in Mogami.

5.6. Implications of the development of subsidairy companies in Yamagata

Various implications arise from the study about subsidiary companies in Yamagata. First, the most important location factor is ample supply of cheap labor in the peripheral region. Also important, in some cases, is that the companies concerned can gain access to so-called "cooperative factories". It might well be just as important that local governments are ready to assist a company concerned. According to research about factories established in the Tohoku District, labor power is the most important factor for location, followed by the factors "cheap land price" and "support from local governments (Hosaka, 1987).

Secondly, the form of division of labor between a parent corporation and its subsidiary is flexible and changeable. It is true that a subsidiary was often completely dependent on the parent company at first. But the former can attain de facto independence especially in the development of manufacturing technique. According to circumstances, it can put out its original product and sell it completely independently of the parent corporation.

Thirdly, the quality of employment is also changeable at the subsidiary in accordance with the course of development mentioned just above. As a result, the relation between the parent coporation and its subsidiary can change from that of one-sided control to that of interdependence. At this stage, it is very important for the subsidiary to have good access either by way of the airlines or the Shinkansen. These routes are important for exchange of engineers between them.

Fourthly, the subsidiary can develop to a large corporation with its own subsidiaries and the subordinate companies. It can take on the functions of a headquarters such as planning, decision-making, information gathering and processing, supervision, etc.. If the subsidiary has become such, it is not a mere dependent company anymore, and one can say that it is an endogenous economic subject, although it can still be influenced externally by the decision-making of the headquarters of its parent corporation located elsewhere.

6. Influences of the location of externally controlled plants on the Yamagata's economy : Conclusion

Although Yamagata had already seen, between 1955 and 1970, so many new locations of factories that a lot of employment opportunities had been created in manufacturing, yet almost all the new work places had absorbed only female workers. In 1970 the female worker comprised about 49 % of the total employment in manfacturing and about 69 % in the electronic industry. Furthermore, the factories located during this period were small and medium-sized in general and were located principally in Southeast Murayama and East Oitama (Section of Employment Security. Department of Commerce, Industry and Labor. Yamagata Prefecture, 1971, pp.1-3).

Therefore, a lot of technical-high-school graduates migrated out especially from the more peripheral subregions within Yamagata toward Tokyo and other metropolitan areas. While about 46 % of high-school graduates who began work in 1971 outmigrated from Yamagata, the proportion amounted to more than 70 % of technical-high-school graduates (Section of Employment Security. Department of Commerce, Industry and Labor. Yamagata Prefecture, 1971, pp.48-53).

The outmigration rate has drastically fallen since the late 1970's. This is partly due to the location of large factories in the electronic industry. Their parent corporations are known so well that high-school graduates are attracted to find work at their subsidiaries. The decrease of children per family may, however, contribute to the decrease of the outmigration rate as well. But a higher percentage of high-school graduates outmigrate still now from North Shonai, Mogami and East Oitama than from Southeast Murayama. The disparity between the center and the periphery within Yamagata cannot be easily ignored.

The ratio of women workers to the total in manufacturing decreased by about five points and, in the electronic industry, at a more substantial rate of points (Table 11).

On the other hand, the disparity of wages between Yamagata and the Japanese average has decreased as well. In 1970, an employee received only about 58 % of the Japanese average wage in manufacturing (Department of Planning, Yamagata Prefecture, 1971). But the percentage rose to 65 in 1986 (Department of Planning and Cordination, Yamagata Prefecture, 1987)[15]. This convergence of wage disparity is due

Table 11. Ratio of Women Workers to the Total according to the Industrial Sectors in Yamagata

Industrial sector	1970	1986
Construction	27.8	13.2
Manufacturing	57.3	51.9
Food & Tobacco	72.4	58.4
Textile	73.4	72.8
Lumber & Wood Products	30.2	19.7
Ceramic, Stone & Clay Products	20.2	13.5
Iron & Steel	34.4	13.2
Machinery, exclusive electric	39.3	37.0
Electric machinery	76.9	57.6
Other	40.5	50.9
Utilities	15.6	13.3
Transport	17.1	8.5
Wolesale & Retail	39.0	41.5
Finance & Insurance	46.1	46.1
Services		48.5
Total	43.9	42.3

Sources : Department of Planning, Yamagata Prefecture (1971).
Departement of Planning and Development, Yamagata Prefecture (1987).

Table 12. Wage Disparity between Man and Woman in Yamagata (wage of a male worker = 100 in each industrial sector)

Industrial sector	1970	1986
Manufacturing	49.0	55.0
Food & Tobacco	39.0	49.6
Textile	55.3	52.4
Lumber & Wood Products	46.3	62.1
Ceramic, Stone & Clay Products	54.7	62.1
Iron & Steel	48.7	49.4
Machinery, exclusive electric	59.8	57.2
Electric machinery	49.8	59.7
Other	54.8	51.2
Utilities	65.9	69.2
Transport	67.2	66.5
Wolesale & Retail	68.9	51.1
Finance & Insurance	52.2	44.5
Services		71.8
Total	49.4	59.7

Sources : Department of Planning, Yamagata Prefecture (1971).
Department of Planning and Development, Yamagata Prefecture (1987).

to the rise of percentage of male workers, because men usually get higher wages than women in Japan.

It is remarkable that there is still now a great disparity of wages between males and females in Yamagata. It is true that the gap between them has lessened. A woman worker got only less than 50 % of the wages of a male worker in 1970. But she could get only about 60 % of his wage even in 1986 (Table 12). Furthermore, the employment of women workers is not so stable as the employment of male workers. Many women are employed as so-called "*Jun-shain*", namely "quasi-members" of a company[16]. In general, they are de jure part-timers, but work only one hour a day shorter than a regular member of the company. Needles to say, the wage system of a "quasi-member" is different from that of a regular member and the wages are much lower.

After the exchange rate of yen to dollar became extremely high in the autumn of 1985, electronic corporations which depended on foreign markets faced difficulties and dismissed a number of workers (Table 13). Most of them must have been "quasi members" of manufacturing corporations, so they most probably have been women.

The people in the rural area of Japan are today not so poor as before the 1960's and rather more prosperous than a segment of urban dwellers. This prosperity stems partly from the household structure of two- or three-income families. The rate of employment for women is very high in Yamagata, especially for the younger married women in comparison with the average in Japan (Yamagata Women's and Young

Table 13. Number of Dismissed Workers in Yamagata

Industrial sector	1984	1985	1986
Mining	—	—	27
Construction	236	59	291
Manufacturing	568	791	1700
Food & Tobacco	—	31	—
Textile	97	41	90
Lumber & Wood Products	103	24	31
Chemical	22	32	21
Ceramic, Stone & Clay Products	—	29	198
Iron & Steel, nonferrous metals	23	—	79
Machinery, exclusive electric	19	68	100
Electric machinery	113	517	823
Transport equipment	23	35	67
Precision instrument	107	—	41
Other	61	14	250
Transport	—	14	13
Wolesale & Retail	150	120	92
Finance & Insurance	—	26	26
Services	14	38	—
Others	—	—	14
Total	968	1060	2163

Note: The object of this investigation was a corporation which had dismissed more than ten workers. This investigation refers not only to full-timers but also to part-timers without fixed limit of employment as well as part-timers with fixed limit of employment and already empolyed longer than four months.

Sources: Unpublished mimeograph of the Section of Employment Security, Department of Commerce, Industry, Labor and Development, Yamagata Prefecture.

Workers Bureau of the Ministry of Labor, 1987). Thus the people in Yamagata seem at least superficially prosperous, but the base is not always firm because of the instability of employment for married women.

In spite of such limitations on the effect of location of manufacturing on the employment in Yamagata, there is a symptom of regional economic development. This is shown in behaviors of the de jure subsidiaries of large corporations, which was explained earlier in this paper. The quality of a part of employment at subsidiaries has become higher and more creative today than before. It is true that the proportion of high-quality employment to the total is still small and the engineers at subsidiaries cannot develop an epoch-making product, but instead only improve manufacturing technique or can develop a factory automation machine at best. But piecemeal improvement including manufacturing technique is also a characteristic of Japan as a whole in comparison with the other developed countries. Japan's economy has developed very much in spite of, or perhaps because of, such piecemeal improvements.

The change of labor productivity of the manufacturing in Yamagata illustrates another symptom of regional economic development as well. Although the index of manufacturing as a whole declined in comparison with the Japanese average, it increased in the electronic industry (Table 14).

It should be noticed that the disparity has increased between the center and the periphery within Yamagata concerning the labor productivity of manufacturing (Table 15). This is also a limit of the effect of industrial location of Yamagata's type on the regional economic development. We can regard the increasing disparity between Yamagata-shi (the central place of Southeast Murayama) and Shinjo-shi (the central place of Mogami) as a product of the industrial location, because a lot of small

Table 14. Change of Labor Productivity in Manufacturing in Yamagata in Comparison with the National Average (value added per employee : thousand yen)

Year	Manufacturing total			Electronic industry		
	Yamagata	Japan	Ratio	Yamagata	Japan	Ratio
1965	564	976	.578	504	1,035	.487
1975	2,129	3,756	.567	1,575	3,414	.461
1985	4,665	8,313	.561	4,504	8,143	.553

Sources : Census of Manufactures, each year.

Table 15. Change of Labor Productivity in Manufacturing in the Center and the Periphery in Yamagata (value added per employee : thousand yen)

Year	Yamagata-shi (A)	Shinjo-shi (B)	Yamagata (C)	(A)/(C)	(B)/(C)
1966	592.5	413.1	515.7	114.9%	80.1%
1969	1,110.2	723.0	977.6	113.6	74.0
1973	2,109.8	1,328.8	1,711.5	123.3	77.6
1974	2,551.8	1,715.1	2,214.1	115.3	77.5
1975	2,848.2	1,575.9	2,356.8	120.9	66.9
1983	5,349.7	2,888.4	4,566.7	117.1	63.2
1985	5,942.9	3,190.4	5,089.8	116.8	62.7

Sources : Census of Manufactures, each year.

and medium-sized factories in Mogami subcontract for the large subsidiaries in Murayama and Oitama.

A number of regional economists have focused on endogenous development since the 1980's in Japan (Hobo, 1986; Miyamoto, 1989). According to their thinking, the location process of electronic industry in Yamagata would be nothing more than the exogenous development and this should not lead to regional development in a real sense of the word. Admittedly, there is a number of limits on the exogenous development and the recent changes described above for Yamagata are only indications of a trend. But it should be noticed that economic potentials stemming from the outside world or from outside the region can become endogenous according to circumstances. And it should be noted that it takes a very long time to change a spatial structure, so that we should hold a long-term perspective when we think of regional development and should not overlook possibilities of economic potentials which come from the outside.

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Notes

1) I have reviewd studies which deal with branch plant economy in the former Federal Republic of Germany (Yamamoto, 1990). Many German authors tend to regard a branch plant as unsuitable for regional economic development in a real sense. But in recent years some studies have appeared that point out positive aspects of the branch plant such as Gräber *et al.* (1987).
2) Glebe (1991) deals with the recent industrialization in Ireland as a peripheral region within the EC.
3) Among Japanese scholars, Nakamura (1990, pp. 185~186) has recognized that long-standing exogenous development can generate possibilities for some endogeneous development.
4) These incidators are calculated from data supplied by the Economic Research Institute of the Economic Planning Agency (1988).
5) It is estimated that about 18,000 persons were employed in 1986 at subsidiaries located in Yamagata, parent corporations of which were classified as manufactures. Nearly 90% of the employees at the subsidiaries were controlled by Tokyo's corporations (Toyo Keizai Shinpo-sha, *Nihon no Kigyo Gurupu (Corporation Groups in Japan)*, 1987). On the other hand, there were about 150,000 employees of manufacturing in Yamagata (Census of Manufuctures, 1986). As some of the subsidiaries would be engaged in other industries than manufacturing, we can estimate that more than ten per cent of the employees in manufacturing worked at subsidiaries.
6) There are a number of studies dealing with the decentralization of manufacturing in Japan. See, for example, the Council for Economic Affairs (Working Group for Problems of Regional Economy) (1981, pp. 21-72) and Matsuhashi (1990). An

article dealing with trends in manufacturing location in Japan appears every year in the journal, "Sangyo Ricchi" (Industrial Location). Nei (1988) is one of the authors whose articles reflect the views of policy-makers within MITI (Ministry of International Trade and Industry) in this journal.

7) There are a number of articles authored by persons in charge of the concerned ministry, dealing with the acts for industrial location in rural areas of Japan (Oono, 1978; Okabayashi, 1977; Yoshino, 1976; Yamamoto, 1987; Nei, 1987).

8) Ito (1988) writes a good and critical review about the policies for regional development and manufacturing location in Japan. The Japan Regional Development Corporation (1988) gives us a list of the policies.

9) The percentages were calculated by this author. The sources are *Census of Manufactures*, and the monthly journal, *Sangyo Ricchi (Industrial Location)*. By the way, Yamagata saw between 1971 and 1985 the most new locations of factories among six prefectures in the Tohoku District, northern Japan. Among 47 prefectures, the prefecture ranks ninth, along with Nagano prefecture, in this indicator.

10) The Japan Regional Development Corporation was founded in August 1974 as an associated organization of MITI. It is the successor to the Public Corporation for Redeveloping Coalfields, which was established in 1962 to relieve coalfields in crisis after the so-called "energy revolution".

11) Friedmann & Weaver (1979, p.165) regard the regional development policy of Japanese type as agropolitan development. The location policy of Yamagata Prefecture is the case of agropolitan development. But the effect is not always so good as expected from the short or middle-term viewpoint at least.

12) Unpublished mimeograph of the Section of Industrial Location (Department of Commerce, Industry, Labor and Their Development), Yamagata Prefecture, 1987.

13) I obtained the information on the location policy of Yamagata Prefecture from an interview with a person in charge of the prefectural government as well as from a number of publications issued by the prefectural government (Yamagata Prefecure, 1971 and 1987; Department of Planning and Cordination, Yamagata Prefecture, 1985).

14) I had interviews in September and November 1987 with managerial staff of subsidiaries located in Yamagata. The local newspaper, Yamagata Shinbun, reported in series on Fridays from April 3rd to December 25th in 1987 about the plants which are located in Yamagata and which are in hands of the external capital. These series are also sources of information about the companies described in this paper. Nikkei Sangyo Shinbun (1987) also gives us valuable information.

15) These statistics are results of an investigation concerning business establishments with more than 30 employees.

16) Informations about a quasi-member of a company were obtained from interviews with managerial staff of several large subsidiaries and with directors of several Employment Service Exchanges in Yamagata. The actual situation of quasi-members of manufacturing companies is not clear, but most of them may well be employed by small or medium-sized companies rather than by large companies, although a member of managerial staff of a subsidiary has stated that another subsidiary described in the text employs a lot of quasi-members and while a

member of managerial staff of the latter company stated that only a few of the total number of employees were quasi-members.

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